

### **Abstract**

The invention is a method for the formation and analysis of novel miniature deposition domains. These deposition domains are placed on a surface to form a molecular array. The molecular array is scanned with an AFM to analyze molecular recognition events and the effect of introduced agents on defined molecular interactions. This approach can be carried out in a high throughput format, allowing rapid screening of thousands of molecular species in a solid state array. The procedures described here have the added benefit of allowing the measurement of changes in molecular binding events resulting from changes in the analysis environment or introduction of additional effector molecules to the assay system. The processes described herein are extremely useful in the search for compounds such as new drugs for treatment of undesirable physiological conditions. The method and apparatus of the present invention does not require the labeling of the deposition material or the target sample and may also be used to deposit large size molecules without harming the same.